

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (currently amended): A method for processing a document based
2 on information in a user interface tag, comprising the steps of:
3 scanning the document to produce an image representative of the
4 document;
5 locating an iconic representation comprised as part of the user interface
6 tag in the image, comprising:
7 identifying connected components of the image;
8 searching, in each of the connected components, for a plurality of
9 extreme points that extend furthest in a selected direction;
10 identifying corner candidates by applying a diagonal length criteria
11 to at least one pair of the extreme points that are diametrically opposed;
12 analyzing relationships among a plurality of the corner candidates
13 to form one or more border candidates for the iconic representation;
14 decoding data represented in the user interface tag at least one such border
15 candidate;
16 associating the data with a service and a user identity; and
17 performing the specified service on the image representative of the
18 document.

1 Claim 2 (canceled).

1 3. (original): The method of claim 1, wherein the step of decoding the
2 data comprises the steps of:
3 determining a lattice of glyphs represented in the user interface tag;
4 identifying a seed glyph within the lattice;
5 finding all glyphs within the lattice;

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6 identifying the rotation of the lattice; and
7 converting the glyphs to binary data.

1 4. (original): The method of claim 1, wherein the step of associating
2 the data with a service and a user identity comprises the steps of:
3 extracting a user identity code from the data; and
4 accessing a database to determine user identification information
5 associated with the identity code.

1 5. (original): The method of claim 4, further comprising the steps of:
2 extracting a service code from the data; and
3 accessing a database to determine service information associated with the
4 service code.

1 6. (original): The method of claim 4, further comprising the step of
2 accessing a database to determine service information associated with the identity
3 code.

1 Claims 7-10 (canceled).

1 11. (currently amended): [[A]] The system of claim 15, wherein the
2 user interface tag bearing bears a machine-readable printed data code, wherein the
3 tag [[is]] being adapted to be associated with a hardcopy document for scanning
4 by a document processing system, and wherein the data code comprises
5 comprising an identity code representative of a user's identity and a service code
6 specifying a service to be performed on said hardcopy document.

1 Claims 12-13 (canceled).

1 14. (currently amended): An apparatus for the creation of user
2 ~~interface tags for use in a tag-based document service system~~ The system of claim
3 15, comprising:
4 an identity processor adapted to receive user information and create an
5 identity code;

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6 a user information database associating the user information with the
7 identity code; and

8 an output device capable of printing [[a]] the user interface tag bearing a
9 machine-readable printed data code representative of the identity code and a
10 service to be performed on [[a]] the hardcopy document to which said user
11 interface tag is affixed.

1 15. (currently amended): A document service system having a tag-
2 based user interface, comprising:

3 a scanner adapted to receive a hardcopy document and produce a digitized
4 image of the document;

5 an action processor adapted to identify an iconic representation comprised
6 as part of a user interface tag image within the digitized image, comprising a
7 connected component identifier to identify connected components of the image; a
8 corner candidate identifier to search, in each of the connected components, for a
9 plurality of extreme points that extend furthest in a selected direction and to
10 identify corner candidates by applying a diagonal length criteria to at least one
11 pair of the extreme points that are diametrically opposed; an analyzer to analyze
12 relationships among a plurality of the corner candidates to form one or more
13 border candidates for the iconic representation; and to decode information
14 represented in the user interface tag at least one such border candidate, said
15 information including information indicating a service to be performed on said
16 hardcopy document; and

17 a device operated by the action processor responsive to the service
18 information represented in the user interface tag.